

**Prototype and Evaluation of AutoHelp:
A Case-based, Web-accessible Help Desk System for EOSDIS**

FINAL REPORT

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AutoHelp: Demonstration and Presentation

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AutoHelp is a case-based, Web-accessible help desk for users of the EOSDIS. It uses a combination of advanced computer and Web technologies, knowledge-based systems tools, and cognitive engineering to offload the current, person-intensive, help desk facilities at the DAACs.


As a case-based system, AutoHelp starts with an organized database of previous help requests (questions and answers) indexed by a hierarchical category structure that facilitates recognition by persons seeking assistance. As an initial proof-of-concept demonstration, a month of email help requests to the Goddard DAAC were analyzed and partially organized into help request cases. These cases were then categorized to create a preliminary case indexing system, or category structure. This category structure allows potential users to identify or recognize categories of questions, responses, and sample cases similar to their needs.

Year one of this research project focused on the development of a technology demonstration. User assistance 'cases' are stored in an Oracle database in a combination of tables linking prototypical questions with responses and detailed examples from the email help requests analyzed to date. When a potential user accesses the AutoHelp system, a Web server provides a Java applet that displays the category structure of the help case base organized by the needs of previous users. When the user identifies or requests a particular type of assistance, the applet uses Java database connectivity (JDBC) software to access the database and extract the relevant cases.

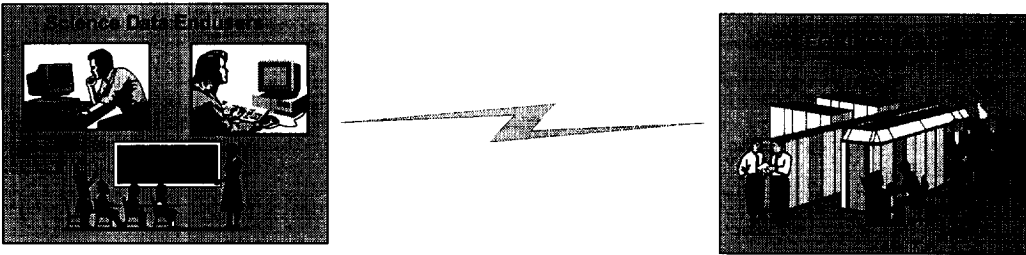
The demonstration will include an on-line presentation of how AutoHelp is currently structured. We will show how a user might request assistance via the Web interface and how the AutoHelp case base provides assistance.

The presentation will describe the DAAC data collection, case definition, and organization to date, as well as the AutoHelp architecture. It will conclude with the year 2 proposal to more fully develop the case base, the user interface (including the category structure), interface with the current DAAC Help System, the development of tools to add new cases, and user testing and evaluation at (perhaps) the Goddard DAAC.

Presentation to NASA Goddard EOS Management: January 1998




A Web-Accessible "Intelligent" Help Desk




An ESDIS Prototype


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<http://eoshelp.isye.gatech.edu/autoHelp>




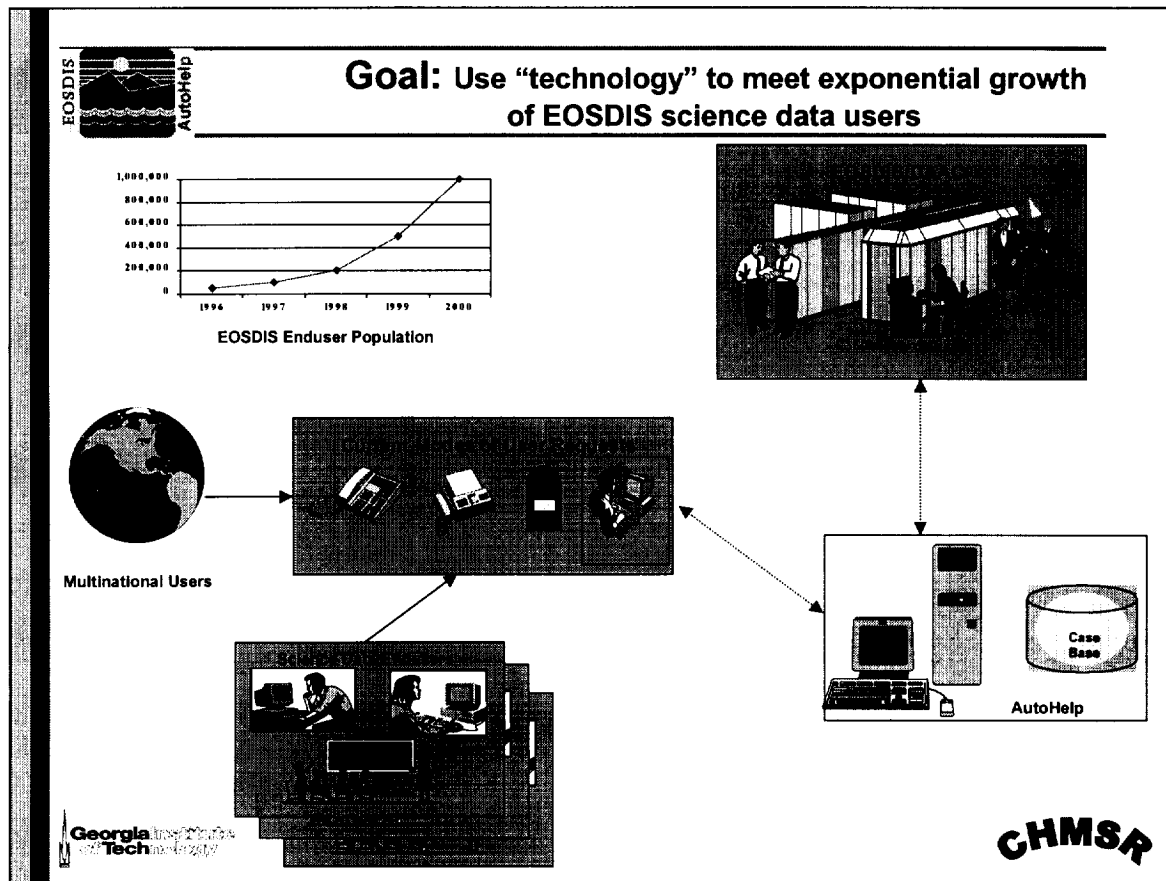


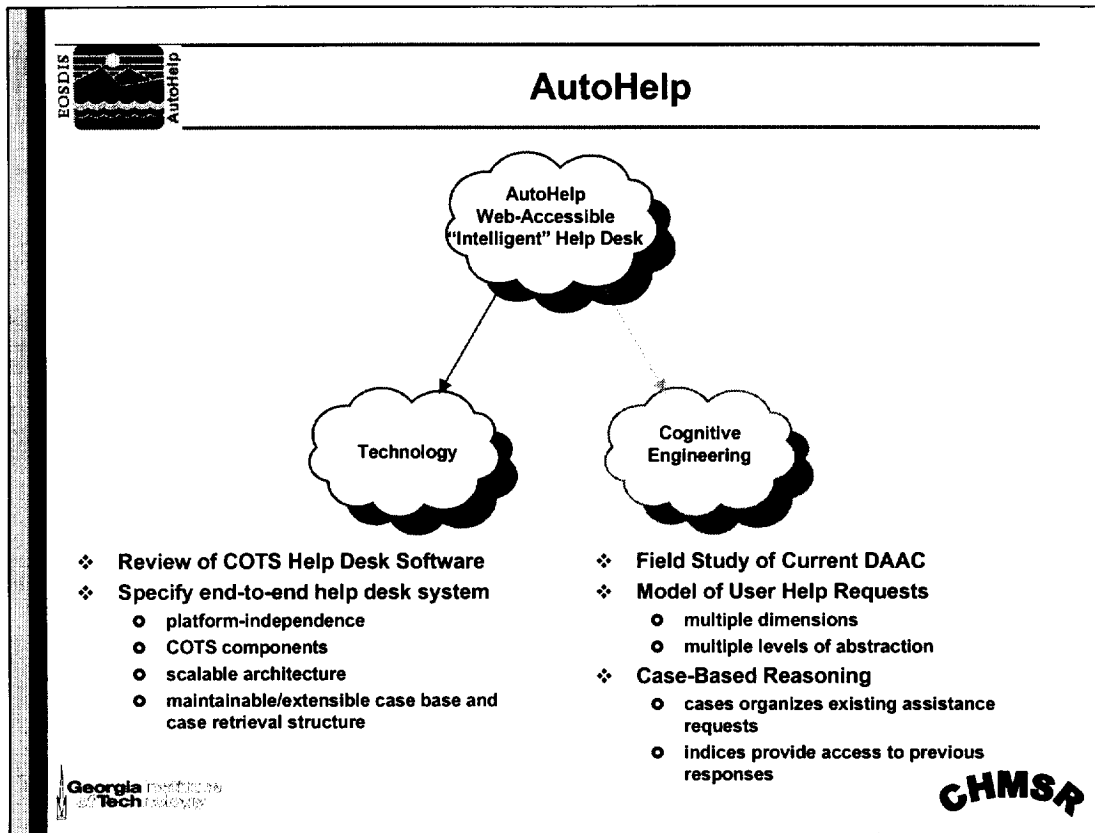
Overview of Presentation

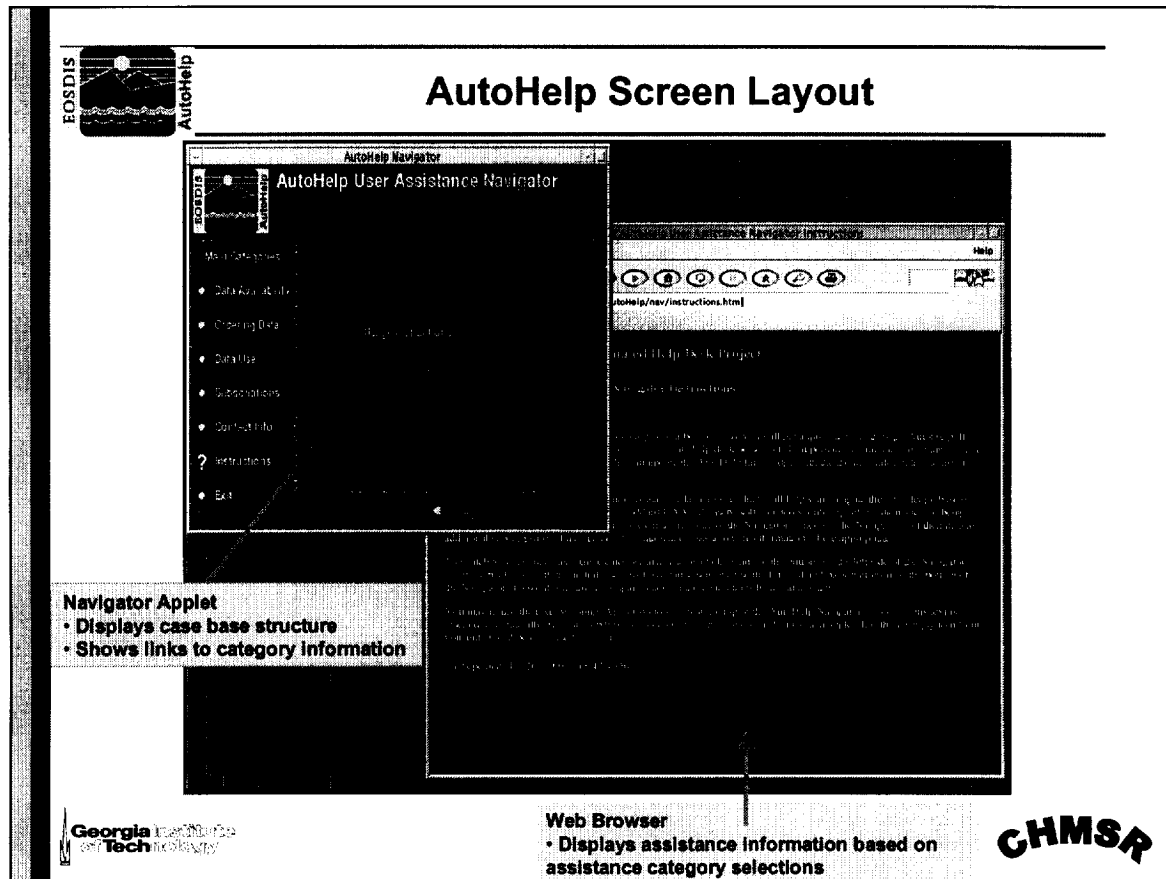
- ❖ Introduction to year 1 goals and outputs
- ❖ Demonstration of current AutoHelp prototype
- ❖ Description of current AutoHelp architecture
- ❖ Presentation of the cognitive model of user requests
- ❖ Overview of Case-Based Reasoning to structure AutoHelp knowledge
- ❖ Current case structure
- ❖ Future Activities


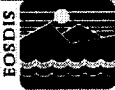










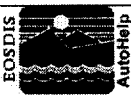




Demo: Scenario 1

- ❖ What data is available from the Goddard DAAC?
 - By scientific discipline
 - By mission/spacecraft
 - By specific dataset





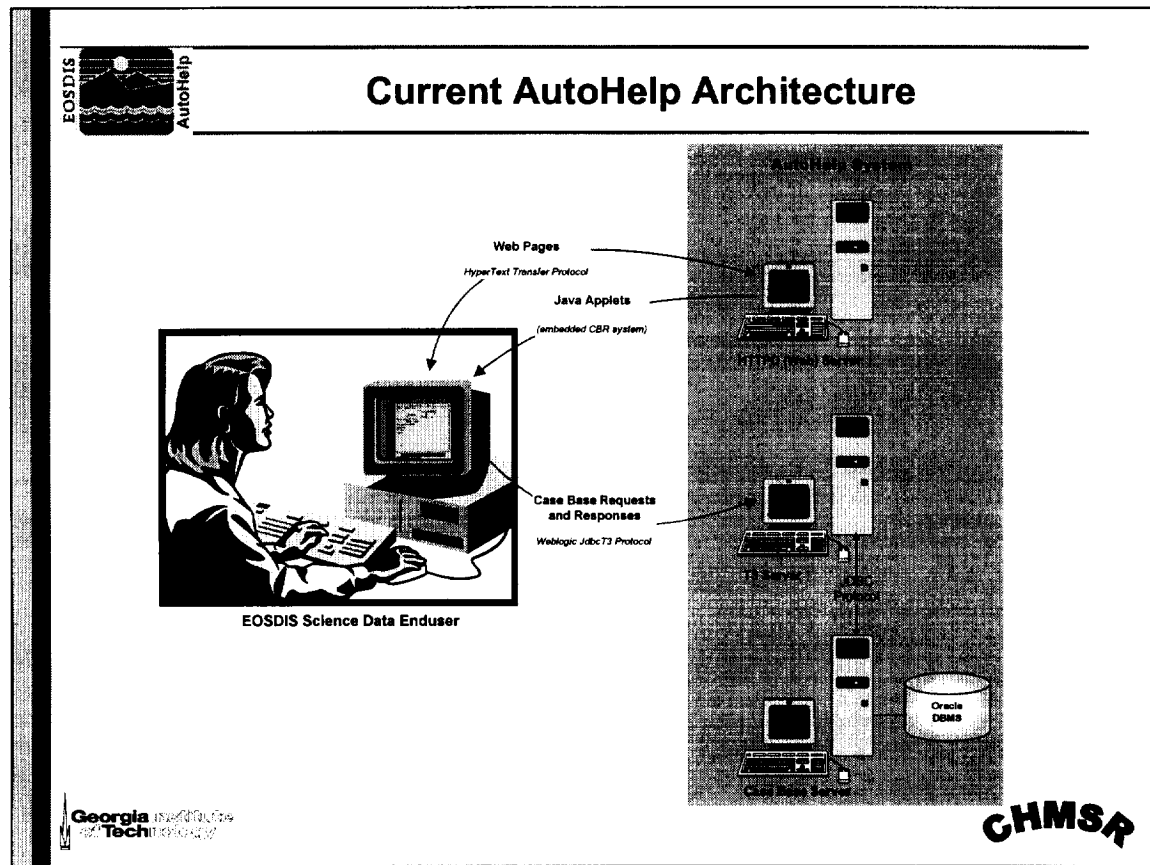


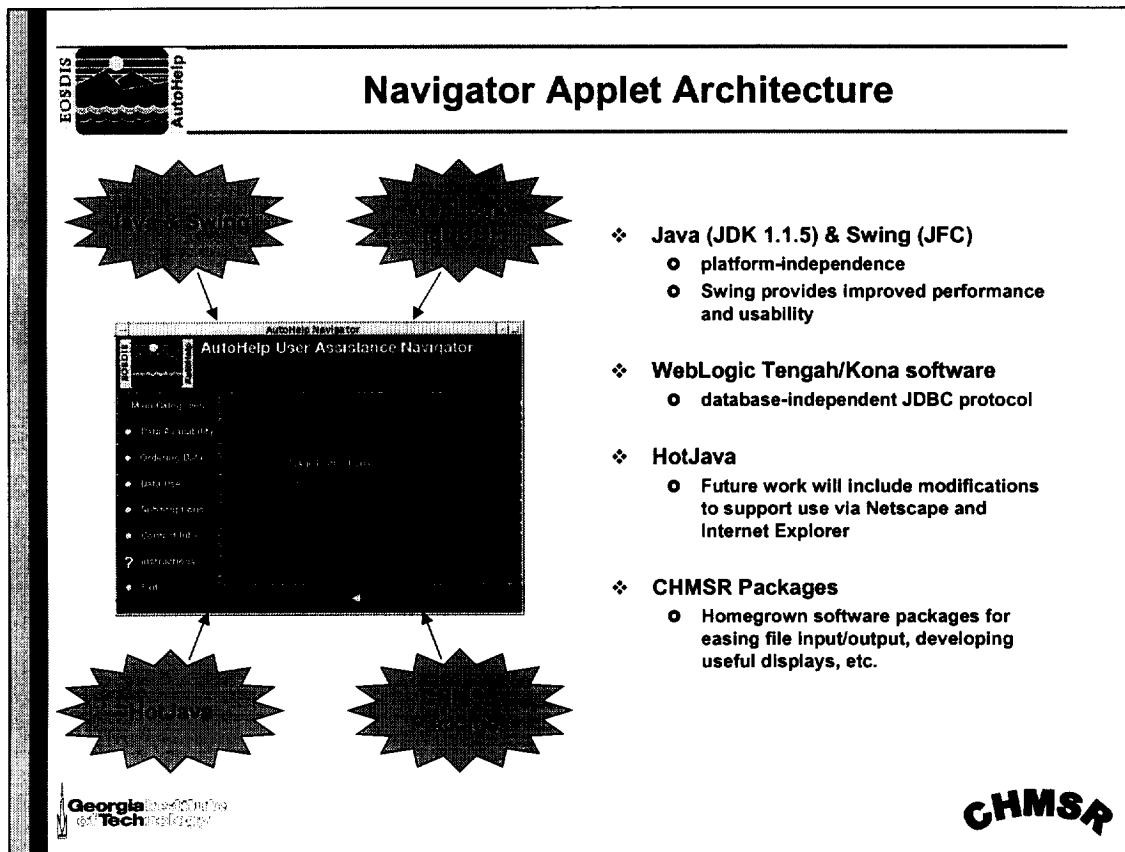
Demo: Scenario 2

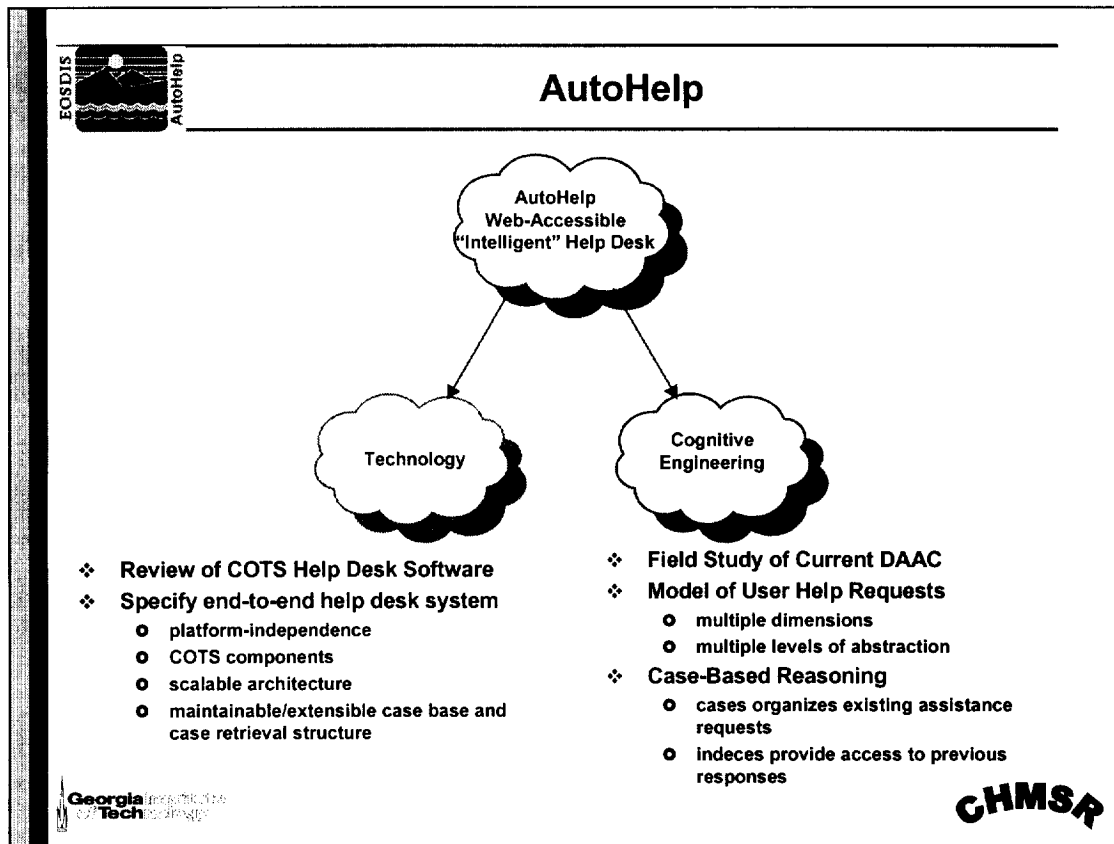
❖ **How do I order data from the Goddard DAAC?**

- What data is available on which media?
- What's available on CD-ROM?
- How do I order a CD-ROM?



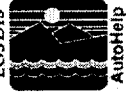






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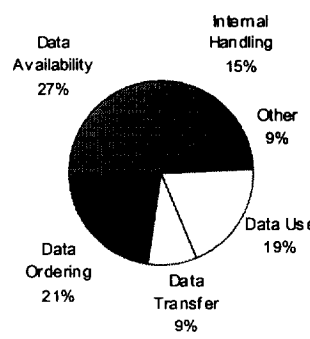
AutoHelp




Model of Help Desk Requests

- ❖ **Preliminary analysis**
 - 400 email assistance requests to Goddard DAAC
- ❖ **Request Categories**
 - **Data Availability**
 - what data are available from EOSDIS?
 - **Ordering Data**
 - how do I order data?
 - cost?
 - **Data Transfer**
 - file transfer/tape reading assistance
 - **Using Data**
 - how do I get what I want to know from the data I have?
 - **Internal Handling**
 - handoffs to other DAACs


Preliminary Categorization of Assistance Requests



Category	Percentage
Data Availability	27%
Data Ordering	21%
Data Transfer	9%
Data Use	19%
Internal Handling	15%
Other	9%



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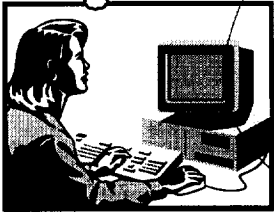


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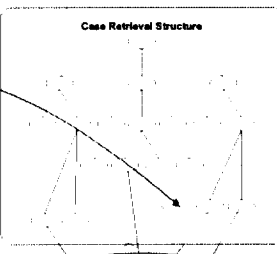
AutoHelp

How do I ...?




Science Data End User

Case Retrieval Structure



User Assistance Cases



Help Request

Help Response

❖ Case Base

- Cases are prototypical user assistance requests and responses

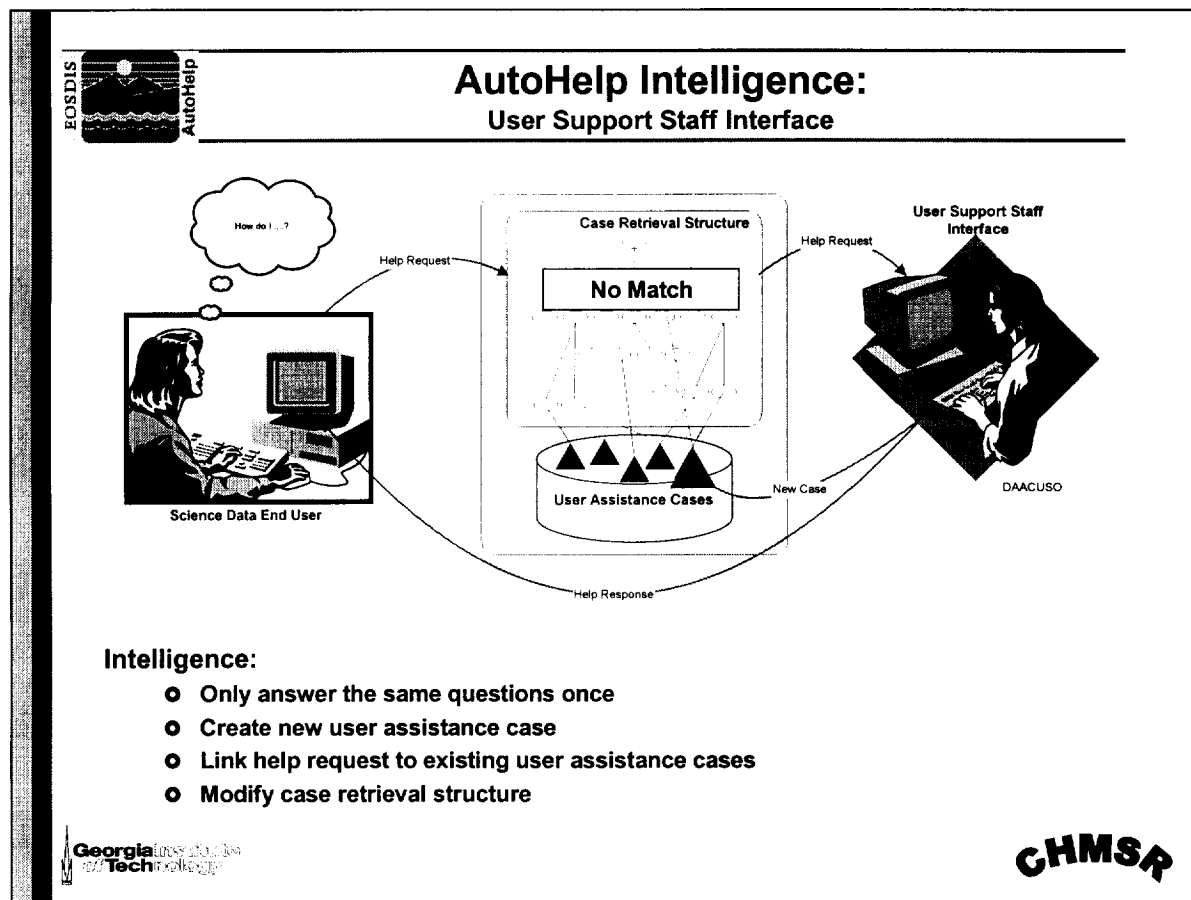
❖ Case Retrieval Structure

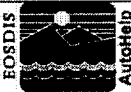
- Case indices defined by model of user assistance requests
- Multiple dimensions (Data Availability, Ordering Data, Data Use, Software Tools, etc.)
- Multiple levels of abstraction (Data Availability:By Discipline:Ocean Color)

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Future Activities

- ❖ **End-to-End Technology Demonstration**
 - **Refine AutoHelp Navigator applet**
 - ☞ display enhancements
 - ☞ applet security
 - ☞ multiple browser support
 - **Setup AutoHelp for outside access**
 - ☞ Install in the GSFC DAAC, or
 - ☞ maintain at Georgia Tech with DAACUSO access
 - **Link illustrative user assistance requests to GSFC DAAC Web site and IMS pages**
- ❖ **Design & Implement DAACUSO Support Staff Interface**
- ❖ **Cognitive Engineering Model**
 - **Refine model of user assistance requests**
 - ☞ questions & responses
 - **Help to populate illustrative case base entries & case retrieval structure**
- ❖ **Usability Evaluation**
 - **Data collection**
 - **Data analysis**
 - **AutoHelp refinement based on evaluation**







User Request with No Match

Question

I am now a member of the NASDA/RESTEC ODUS science team and also involved in ODUS instrument design.


So I am very interested in TOMS trend data. Dr. Fumio Hasebe said you have Nimbus 7/TOMS, Meteor 3/TOMS, TOMS/UV_Erythermal Exposure, TOMS/Reflectivity version 7 CD-ROMS.


I would appreciate it very much if you could send me the above CD-ROMS to the following address. Thank you very much in advance.

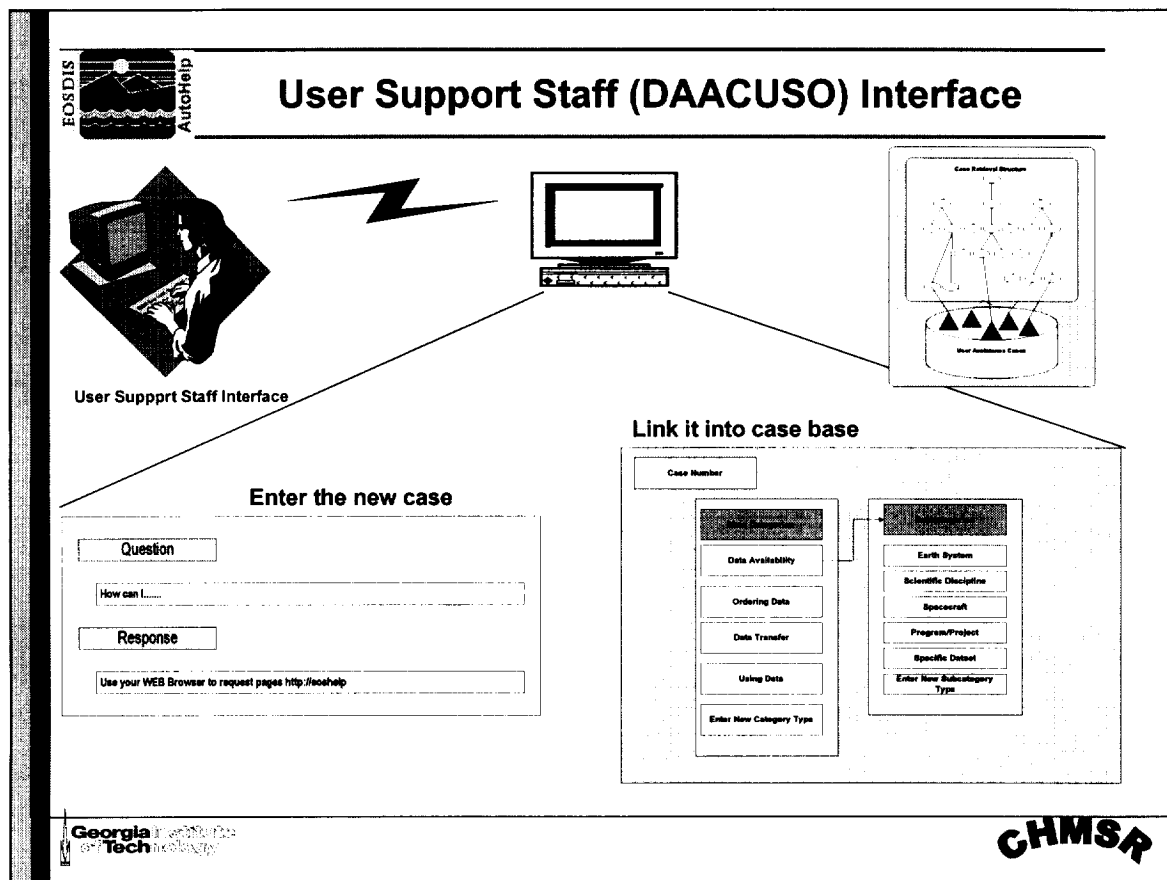
Sincerely yours,
Akihiko Kuze
Electro-Optical Systems Department
Space Systems Division, NE Corp.
4035, Ikebe-cho, Tsukuki-tu, Yokohama, 224 Japan

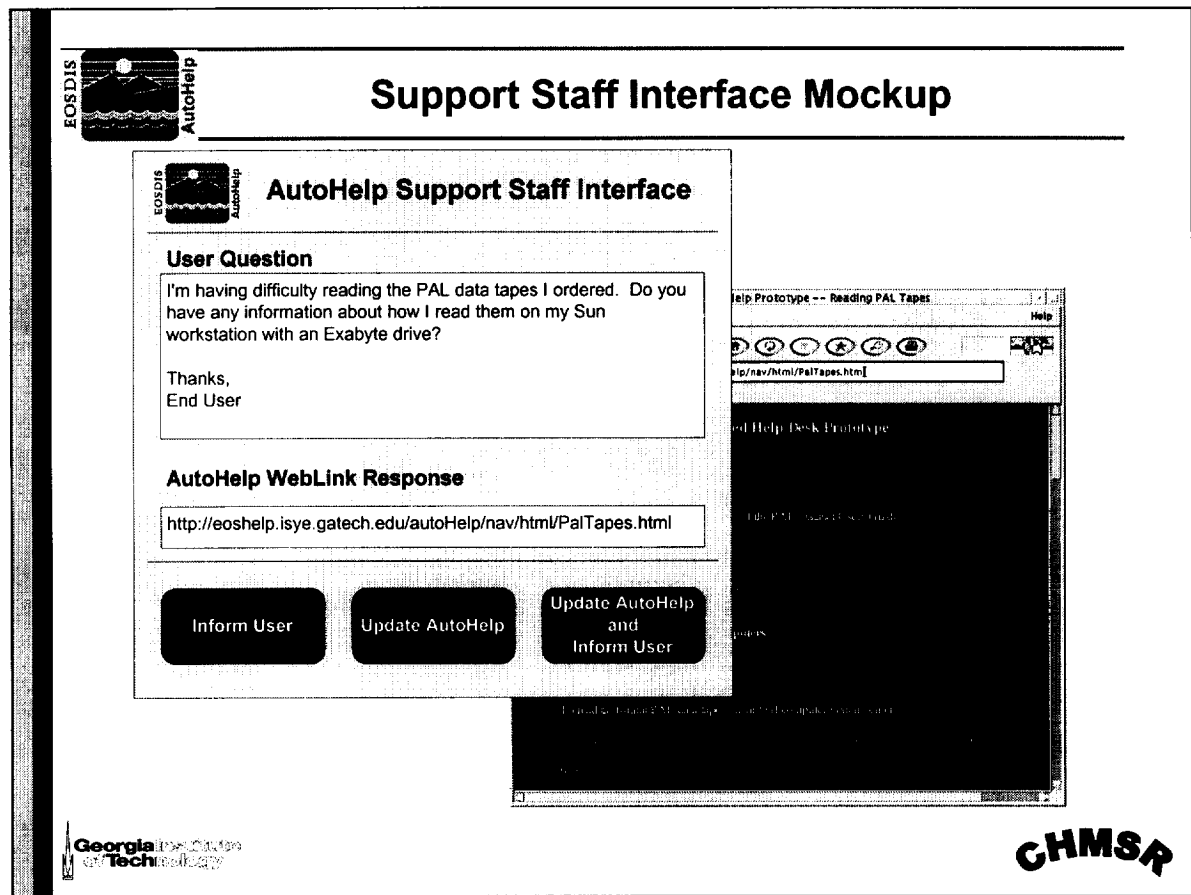
Response from DAACUSO

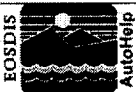
You can order TOMS 7 CD-ROMS from the following the Goddard DAAC Web page:
http://daac.gsfc.nasa.gov/elf-bin/elf/access_cdrom.ksh/screen=gob_entrance/test=3












Informing the User



AutoHelp Support Staff Interface

To:

From:

Subject:

Message Preview:

In response to your question:

I'm having difficulty reading the PAL data tapes I ordered. Do you have any information about how I read them on my Sun workstation with an Exabyte drive?

The information you need is now available via the Web at the following location:

<http://eoshelp.isye.gatech.edu/nav/html/PalTapes.html>

If your mailer supports HTML, the information is appended below.

Sincerely,
Goddard DAAC User Support Office

